S
363.7384
H2PLPS
MAR 1992

PLEASE R

Montana State Library
3 0864 1005 9433 5

March 1992

Progress

Idaho Pole Superfund site

By the Montana Department of Health and Environmental Sciences
and the U.S. Environmental Protection Agency

STATE DOCUMENTS COLLECTION
APR 0 6 1992
MONTANA STATE LIBRARY
1515 E. 6th AVE.
HELENA, MONTANA 59620

Introduction

The Montana Department of Health and Environmental Sciences (MDHES) has recently completed two activities at the Idaho Pole Superfund site — the remedial investigation and the risk assessment. The remedial investigation is a complete collection of the data which characterizes site conditions and describes the types and extent of environmental contamination. The risk assessment report identifies current and future risks to both human health and the environment. The human health risk assessment uses specific concentrations of contaminants and assumptions about human exposure to site contaminants. The environmental risk assessment evaluates existing and potential impacts to the environment in the site vicinity. The environmental risk assessment is generally more subjective than the human health risk assessment. Both the remedial investigation and the risk assessment will guide MDHES and the U.S. Environmental Protection Agency (EPA) in coming to a final decision about site cleanup/remedy.

MDHES will release both the Remedial Investigation and Risk Assessment reports in early April and will hold a 30-day public comment period. MDHES will notify all persons on their mailing list, by postcard, of the public comment period. MDHES and EPA strongly encourage the public to read the documents and submit comments. (Please refer to the "Get Involved" section of this progress report.)

Get involved

The Montana Department of Health and Environmental Sciences (MDHES) is approaching the decision point for the Idaho Pole Superfund site. By July, MDHES and the U.S. Environmental Protection Agency (EPA) expect to have chosen a cleanup/remedy for the site. MDHES strongly encourages the public to become involved in site issues and the decision-making process. There are a variety of ways to get involved:

Document repositories:

MDHES has established document repositories at three locations in Bozeman. The repositories contain the site technical documents and the public is allowed to check them out for a limited period. Documents can be found at the Bozeman Public Library, the County Environmental Health Office in the basement of the courthouse (formerly the County Sanitarian's Office), and at the MSU Library.

Public comment period:

MDHES will hold a 30-day public comment period on the Remedial Investigation and Risk Assessment reports as soon as the documents are published (expected by the end of March or beginning of April). MDHES will send postcards announcing the comment period to everyone on their Idaho Pole site mailing list. Written comments should be sent to MDHES site project officer Kevin Kirley, Montana Dept. of Health and Environmental Sciences, Cogswell Building, Helena, MT 59620.

Public meeting:

MDHES and EPA will hold a public meeting Thursday, March 19, at 7 p.m. at the Bozeman Public Library to discuss the Remedial Investigation and Risk Assessment. MDHES hopes the public will share their concerns and ideas about the site.

Superfund hotline:

MDHES operates a 24-hour toll-free phone line for members of the public who have questions, comments and concerns about the Superfund process. The line is answered by Superfund staff from 8 a.m. to 5 p.m. weekdays except holidays and by an answering machine during evenings and weekends. Please feel free to make use of the hotline. The number is 1-800-648-8465.

Back issues of progress reports:

MDHES keeps on file back issues of progress reports such as this one. The June 1991 progress report summarizes the findings of the remedial investigation in more detail than this

Cont. on page 2

Get involved

(Cont. from page 1)

report. Back issues are available upon request or at the Bozeman Public Library. To obtain progress reports about the Idaho Pole site or any other Montana site, please call MDHES public information officer Jane Stiles at 1-800-648-8465 in Helena or leave a message on the answering machine.

Remedial investigation now complete

Two years ago, in April 1990, MDHES began the remedial investigation for the Idaho Pole Superfund site. The investigation focused on four areas:

- Potential sources of contamination
- Groundwater
- Surface water
- Soils/sediment

The results of these four original study areas are summarized in the June 1991 Progress Report. Please refer to the "Get Involved" section of this report on page 1 if you wish to receive a free copy of that June 1991 report. Copies are available at the Bozeman Public Library.

In spring 1991, MDHES had completed investigation of these areas and believed that the non-aqueous phase liquids (NAPL) plume had not been characterized as well as necessary. MDHES conducted supplemental sampling in June and July 1991 to more clearly define NAPL contamination around the Idaho Pole Plant. The results of this study are outlined in the Remedial Investigation. MDHES gained needed information about the size and shape of the NAPL area or "plume". The study revealed that NAPL which floats on top of the groundwater are found in "pools" or distinct areas underground, instead of appearing as one continuous plume of contamination.

MDHES also conducted a limited investigation of the deep aquifer during summer 1991 and, as a result, found that contamination in the next lower (deeper) aquifer is considerably less than the aquifer above. MDHES believes that the extent and depth of groundwater contamination have been determined (approximately 50 to 60 feet deep).

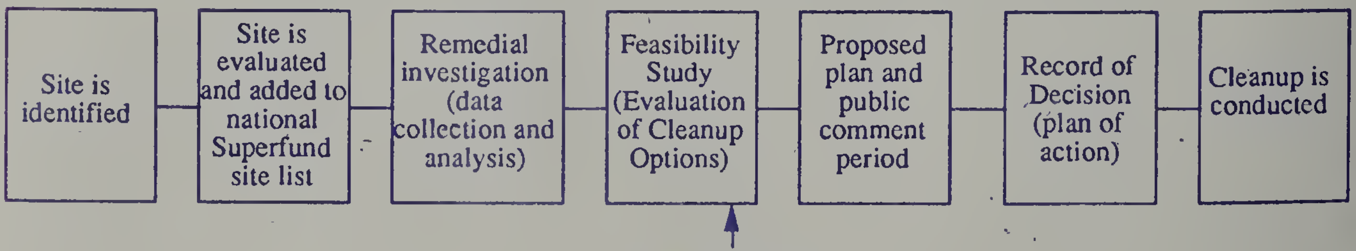
The information from the original four focused investigations, the additional NAPL plume sampling and the limited deep aquifer investigation are contained in the Remedial Investigation report. The Remedial Investigation report provides the basis for MDHES and EPA to choose a site remedy/cleanup technology by means of the feasibility study process.

Feasibility study continues

The feasibility study is the process by which MDHES and EPA identify, screen and evaluate site cleanup/remedy technologies and alternatives. Initially, many technologies are considered. Potential technologies are reviewed and assembled into several broad remedial alternatives. Subsequently, the alternatives are screened, evaluated and compared against statutory and regulatory criteria. MDHES and EPA must choose an alternative that best meets these criteria. Alternatives that are still under consideration for the Idaho Pole site include:

- No action, which includes institutional and engineering controls such as land use and well drilling restrictions, fencing and so on.
- Biological, physical and chemical treatment of contaminated soil, sediment and groundwater
- Thermal treatment (incineration) of contaminated soil and sediment

Where do we stand in the Superfund process?


Site is identified
Site is evaluated and added to national Superfund site list
Remedial investigation (data collection and analysis)
Feasibility Study (Evaluation of Cleanup Options)
Proposed plan and public comment period
Record of Decision (plan of action)
Cleanup is conducted

Idaho Pole site status as of March 1992

How is a risk assessment conducted?

MDHES conducted the risk assessment process at the same time as the remedial investigation in order to redirect remedial investigation efforts in case specific information was required from the remedial investigation. The risk assessment is completed after the remedial investigation is done so that all available site information can be evaluated.

The human health risk assessment:

Typically, the human health risk assessment is a four step procedure:

1) hazard identification,
2) dose-response evaluation,
3) human exposure assessment, and
4) risk characterization.

MDHES completed the risk assessment in compliances with EPA guidance, technical reports, compiled epidemiological information, and exposure assumptions including site characterization data.

Hazard identification is the determination that compounds or elements found at the site actually consitute a potential health hazard. This is based upon epidemiologic studies, laboratory investigations (animal studies) or weight-of-evidence (substantial case studies conclusively supporting a potential hazard).

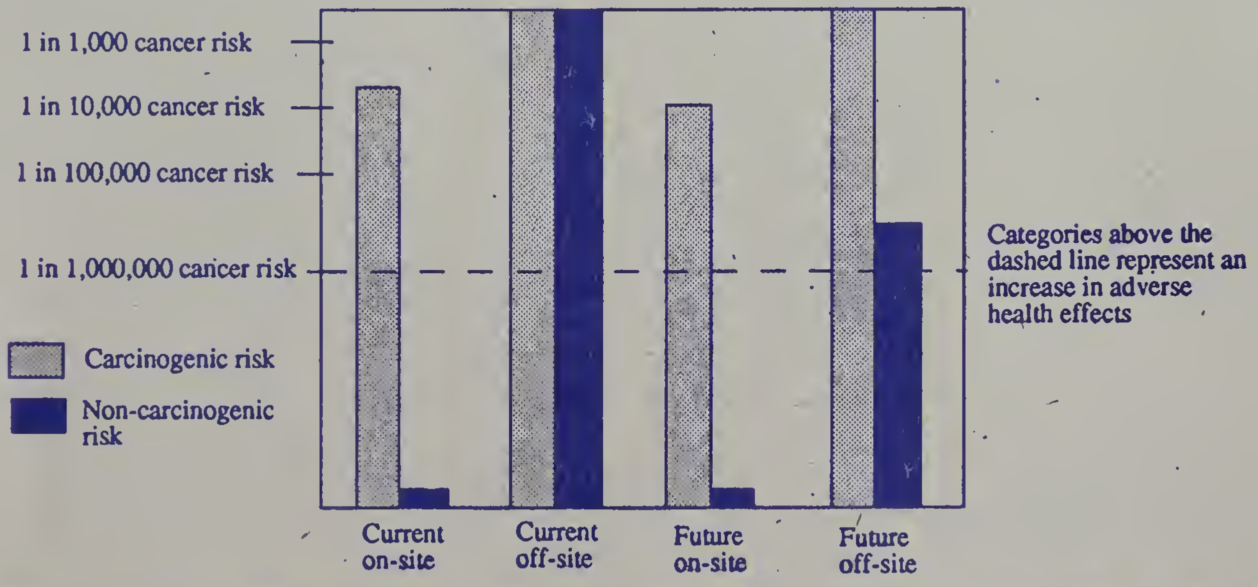
Dose-response determination is a quantification of how much of a contaminant will produce adverse human health effects. Different techniques are used for carcinogenic and non-carcinogenic contaminants. For carcinogens a cancer potency factor is established that relates the probability of cancer with concentration of the contaminant. For non-carcinogens a "reference dose" is determined. This reference dose is the amount of a contaminant to which a person can be exposed over a long time and still show no adverse health effects. The reference dose and the potential to cause cancer are difficult to define exactly because they are usually based on animal studies and because people differ in their sensitivity to contaminants.

The exposure assessment correlates several assumptions concerning potential exposure routes to a contaminant. At the Idaho Pole site these potential exposure routes to site contaminants include ingestion, inhalation, and/or direct contact of contaminated ground and surface water, soil, dust, and/or wood treatment preservative. MDHES must make assumptions about how much the community is exposed to site contamination.

These three factors are combined and the result is a **risk characterization** of current and potential risk. Subsequently, MDHES evaluates potential site cleanup/remedy alternatives

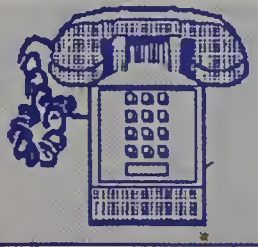
(cont. on page 4)

Comparison of adverse health effects due to Idaho Pole site contaminants



Categories above the dashed line represent an increase in adverse health effects

Values represented by bars above portray population at greatest risk of cancer or non-cancerous adverse health effects



TOLL-FREE SUPERFUND HOTLINE

If you have questions, comments or concerns about a Superfund site in Montana, or about Superfund in general, please call our toll-free hotline. The hotline is in operation from 8 a.m. to 5 p.m. weekdays, except holidays. In-state use only!

1-800-648-8465

Risk assessment

(Cont. from page 3)

and compares how well they can reduce the current and potential risk to an acceptable risk range.

Conclusions — human health

The human health risk assessment established four scenarios to evaluate potential health risks if no action is taken at the site: current on-site, current off-site, future on-site and future off-site. Future risks posed by site contamination will be influenced by an assumed, natural decrease in contaminant concentrations (assuming there are no further releases of contaminants from the pole treating facility) and different exposure assumptions. Please refer to the figure on page 3 for a summary of health risks.

1. Current on-site risk: In general, excess carcinogenic health risk (greater that an 1 in 1,000,000 increase) are identified for workers and for casual visitors.

2. Current off-site risk: Adults and children are potentially at excess risk in terms of non-carcinogenic adverse health effects. MDHES determined that children have a significant carcinogenic risk.

3. Future on-site risk: MDHES has determined that there is a potential for excess carcinogenic risk for adults.

4. Future off-site risk: Only off-site children are identified as having a potential for excess hazard to non-carcinogenic health effects. MDHES has determined that there is a potential for excess carcinogenic risk for adults.

Based on the human health risk assessment, MDHES and EPA have determined that remedial action at the site is required.

The environmental risk assessment:

The environmental risk assessment is conducted in a similar manner although it is much more general than the human risk assessment. The conclusions are usually qualitative and only consider whether the environment (plant and animal life) is currently or may be impacted adversely.

Conclusions - the environmental

Three representative scenarios were developed for the evaluation of environmental risk at the site. A Biota Investigation, MSE, April 1991 provides much of the background information for this assessment. MDHES identified representative aquatic and terrestrial species and limited exposure via the oral route in these species. Based on the environmental risk assumptions, it appears that the site does not pose an environmental risk.

Potential health effects of site contaminants

MDHES considered the following contaminants during the risk assessment. These contaminants are present in the products Idaho Pole uses to preserve wood.

Pentachlorophenol (PCP)

PCP is readily absorbed when it comes in contact with a person's digestive or respiratory system or the skin. Exposure to large amounts of PCP in a short time may result in profuse sweating, fever, weight loss, gastrointestinal irritation, lung, eye, liver and kidney damage, convulsions, heart failure and even death. Longer-term effects include a higher incidence of low-grade infections and depressed kidney function. PCP has been recently identified as a probable human carcinogen.

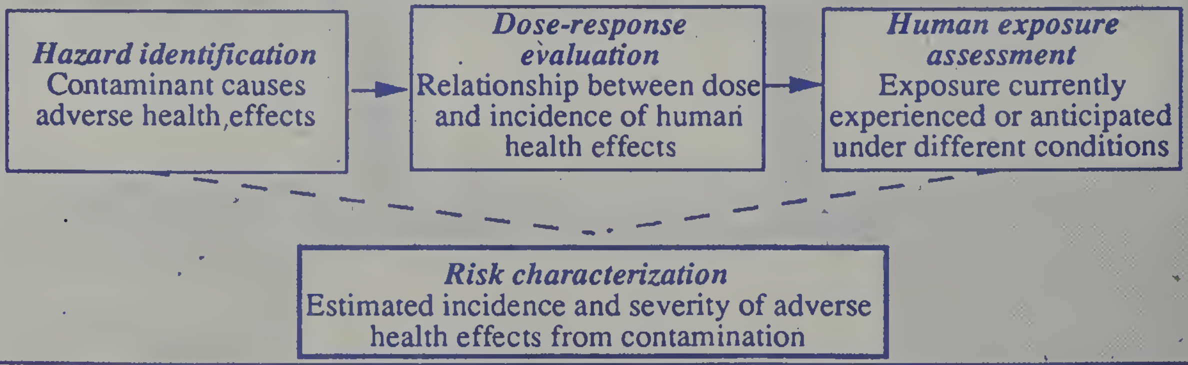
Polynuclear Aromatic Hydrocarbons (PAHs):

Limited information is available on PAHs. Because they are fat-soluble, PAHs are easily absorbed into the body through the lungs, skin and digestive tract. Once absorbed, these compounds migrate to all tissues but are particularly concentrated in those tissues with high fat content. Exposure to large amounts of PAHs in a short time may result in sun sensitivity, skin reddening, itching and burning. Some PAHs are potential carcinogens (cancer-causers).

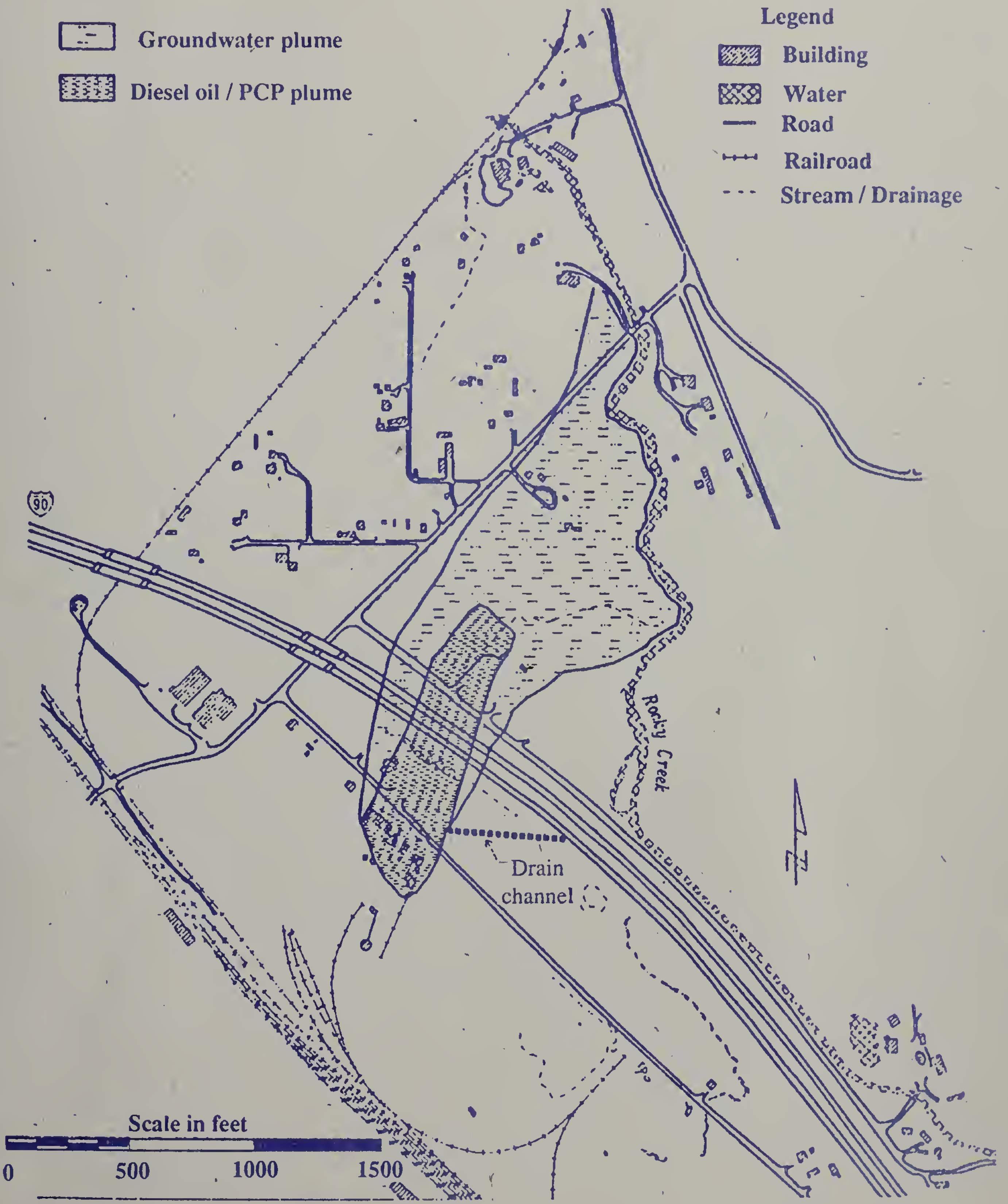
Dioxins/furans:

Several related compounds are included in this category. Dioxin/furan compounds can be produced through excessive heating of preservative fluid or during fires although they were a common contaminant in earlier PCP formulations. A wide variety of toxicity studies, although limited, indicate carcinogenic and reproductive adverse human health effects. Organs potentially impacted are skin, liver, thymus, and enzyme system. Generally the dioxins/furans found at the Idaho Pole site are of the least toxic variety.

The steps of a risk assessment


Hazard identification
Contaminant causes adverse health effects
Dose-response evaluation
Relationship between dose and incidence of human health effects
Human exposure assessment
Exposure currently experienced or anticipated under different conditions
Risk characterization
Estimated incidence and severity of adverse health effects from contamination

Idaho Pole Superfund site



DON'T MISS OUT!

FIND OUT ABOUT THE IDAHO POLE SUPERFUND SITE

PUBLIC MEETING
THURSDAY, MARCH 19, 1992
7 P.M.
BOZEMAN PUBLIC LIBRARY MEETING ROOM

The Montana Department of Health and Environmental Sciences will hold a public meeting to discuss the results of the public health risk assessment and the Draft Remedial Investigation Report for the Idaho Pole Superfund site. MDHES encourages the public to attend this meeting and voice their concerns and ideas about the cleanup/remedy of the site's contaminants.

For more information, call Superfund Public Information Officer Jane Stiles in Helena at 1-800-648-8465.

ARE YOU ON OUR MAILING LIST?

If you did not receive this Progress Report in the mail and wish to be placed on the mailing list for future publications about the Idaho Pole Superfund site, please fill out, detach, and mail this form to: Janie Stiles, Montana Department of Health and Environmental Sciences, Cogswell Building, Helena, MT 59620.

Name____

Address____

City, State____________________ Zip Code____________

600 copies of this public document were published at an estimated cost of .453 per copy, for a total cost of $271.80 which includes $141.50 for printing and $131.37 for distribution